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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/733,187 | 12/11/2003 | Satoshi Sumino | FUJM 20.762 | 8053 |

26304 7590 11/12/2008
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| EXAMINER | |
|---|---|
| ELPENORD, CANDAL | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2416 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 11/12/2008 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/733,187 | SUMINO ET AL. | |
| | Examiner | Art Unit | |
| | CANDAL ELPENORD | 2416 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *21 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☒ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *December 11, 2003*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 1-17** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

**Regarding claims 1, 7-8, 12, 14-15**, the claimed subject matter is rejected under single means claim, where a means recitation does not appear in combination with another recited element.

Claims 2-6, 9-11, 13,16-17 are rejected since they depend on claims 1, 12 respectively.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. **Claims 1-5, 16-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al (US 7,046,629 B2) in view Brown (US 6,633,567 B1), and further view of Rodrig et al (US 6,256, 314 B1).

**Regarding claim 1**, Wu '629 discloses a switching apparatus ("switch in a network system", recited in abstract, lines 1-5) for learning a source address set in a packet in an address learning table (fig. 2, Source Address in address learning Table)

and delivering a packet ( “processing of received packet”, recited in col. 2, lines 48-52) on the basis of an address learned in said address learning table (fig. 2, Source Address in address learning Table), said switching apparatus (“switch in a network system”, recited in abstract, lines 1-5) comprising: an address learning unit for limiting a number of learned addresses in the address leaning table for each user group (“determining whether or not the learned addresses has exceeded the maximum number", recited in col. 2, lines 38-40, “number of users”, recited in col. 3, lines 1-2) such that a number of learned addresses (“method for controlling the number of addresses in address table”, recited in col. 2, lines 32-38).

**Regarding claim 2**, Wu ‘629 discloses the switching apparatus (“switch in a network system”, recited in abstract, lines 1-5), wherein said address learning unit assigns a fixed said address learning upper limit value to each user group (“number of users”, recited in col. 3, lines 1-2, “when the number of learned addresses in the address learning table has not exceeded maximum number, “increase the number or addresses by one”, recited in col. 2, lines 52-64).

**Regarding claim 3**, the switching apparatus (“switch in a network system”, recited in abstract, lines 1-5).

**Regarding claim 4**, Wu ‘629 discloses the switching apparatus (“switch in a network system”, recited in abstract, lines 1-5); **regarding claim 5**, the switching apparatus (“switch in a network system”, recited in abstract, lines 1-5).

**Regarding claim 17**, Wu ‘629 discloses the switching apparatus (“switch in a network system”, recited in abstract, lines 1-5), wherein said address learning unit (fig.

2, “learning switch”, recited in col. 3, lines 49-53) records the number of addresses learned in said address learning table for each said user group (“number of users”, recited in col. 3, lines 1-2) in a learning number counter (see, fig. 2, “record of learned address as N= N+ 1 as the learning counter", recited in col. 3, lines 62- col. 4, lines 3).

Wu ‘629 discloses all the claimed limitation with the exception of being silent with regard to the following features:

**Regarding claim 1**, limiting a number of learned addresses such that a number of learned addresses for each user groups which are classified into a plurality of groups based on header information set in said packet in said address learning table.

**Regarding claim 2**, wherein said address learning unit assigns a fixed said address learning upper limit value to each user group.

**Regarding claim 3**, wherein said address learning unit sets a value for equally allocating a maximum number of addresses learnable in said address learning table to all user groups as said address learning upper limit value for each user group.

**Regarding claim 4,** wherein said address learning unit sets a fixed value greater than a value for equally allocating a maximum number of addresses learnable in said address learning table to all user groups as said address learning upper limit value for each user group.

**Regarding claim 5**, wherein said address learning unit dynamically calculates a value for equally allocating a maximum number of addresses learnable in said address learning table to user groups currently learned in said address learning table and sets said value as said address learning upper limit.

**Regarding claim 16**, wherein when a packet with a new address arrives, said address learning unit counts a number of events in which a number of learned addresses for a user group of the source address of said packet reaches said address learning upper limit value for said user group.

However, Brown et al. in the same field of endeavor discloses the following features:

**Regarding claim 1**, limiting a number of learned addresses such that a number of learned addresses ("maximum of four VIDs per FID/Virtual LAN", recited in col. 9, lines 33-40) for each user groups ("members of VLAN group", recited in col. 6, lines 15-24) which are classified ("assigned of unique a unique group member number", recited in col. 9, lines 18-30) into a plurality of groups based on header information set in said packet ("extract of VID from data packet", recited in col. 8, lines 7-17) in said address learning table ("forwarding logic for determining a forwarding decision", recited in col. 5, lines 27-40).

**Regarding claim 2**, wherein said address learning unit assigns a fixed said address learning upper limit value ("maximum allowed number of VLANs per Virtual LAN Group/FID", recited in col. 9, lines 33-40) to each user group ("members of VLAN group", recited in col. 6, lines 15-24).

**Regarding claim 3**, wherein said address learning unit sets a value for equally allocating a maximum number of addresses ("maximum VLAN of four", recited in col. 9, lines 33-40) learnable in said address learning table ("forwarding logic for determining a forwarding decision", recited in col. 5, lines 27-40) to all user groups group ("members

of VLAN group", recited in col. 6, lines 15-24) as said address learning upper limit value ("allowing number four VLANs per FID", recited in col. 9, lines 33-40) for each user group ("members of VLAN group", recited in col. 6, lines 15-24).

**Regarding claim 4,** wherein said address learning unit sets a fixed value greater ("as dynamic entry is learned, overwritten with a new value", recited in col. 9, lines 42-53) than a value for equally allocating a maximum number of addresses learnable in said address learning table ("forwarding logic for determining a forwarding decision", recited in col. 5, lines 27-40) to all user groups as said address learning upper limit value ("maximum of eight VLAN per FID", recited in col. 9, lines 41-46) for each user group ("maximum allowed number of VLANs per Virtual LAN Group/FID", recited in col. 9, lines 34-40).

**Regarding claim 5**, wherein said address learning unit dynamically calculates a value for equally allocating a maximum number of addresses ("maximum allowed number of VLANs per Virtual LAN Group/FID", recited in col. 9, lines 33-40) learnable in said address learning table to user groups currently learned in said address learning table and sets said value as said address learning upper limit value ("maximum allowed number of VLANs per Virtual LAN Group/FID", recited in col. 9, lines 34-40).

**Regarding claim 16**, wherein when a packet with a new address arrives ("data packet received", recited in col. 5, lines 53-62), said address learning unit counts a number of events in which a number of learned addresses ("shared learning amongst the VLANs", recited in col. 6, lines 41-53) for a user group of the source address of said packet reaches said address learning upper limit value ("maximum allowed number of

VLANs per Virtual LAN Group/FID", recited in col. 9, lines 33-40) for said user group ("members of VLAN group", recited in col. 6, lines 15-24). Therefore, it would have been obvious ton of ordinary skill in the art at the time the invention was made to modify the features of Wu et al. by using features of Brown et al. in order to provide dynamic learning of a data packet associated with a group identifier (See Col. 4, lines 10-27 for motivation).

Wu '629 and Brown "567 disclose all the claimed limitations with the exception of being silent about the claimed features:

**Regarding claim 1**, controlling the number learned addresses in the address learning table for each user group.

However, Rodrig '314 from the same field of endeavor discloses the above claimed features:

**Regarding claim 1**, controlling the number learned addresses in the address learning table for each user group (noted: the learning control table with means for setting list of IP addresses that may be eligible to be learned, col. 13, lines 10-44, see learned information such as VLAN ID, col. 8, lines 24-53, fig. 6, see VLAN ports).

In view of the above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching features of Wu '629 with Brown '567 by using features as taught by Rodrig '314 in order to control the IP address ranges that may be eligible to learned per VLAN Ids as suggested in col. 13, lines 35-44 for motivation.

8. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al (US 7,046,629 B2) in view of Brown (US 6,633,567 B1), Rodrig et al (US 6,256,314 B1) as applied to claim 1 above, and further in view of Sistanizadeh et al (US 6,963,575 B1).

**Regarding claim 6,** Wu et al. discloses ("switch in a network system", recited in abstract, lines 1-5).

Brown '567 discloses, wherein said address learning unit sets said address learning upper limit value ("maximum allowed number of VLANs per Virtual LAN Group/FID", recited in col. 9, lines 34-40) for each user group ("members of VLAN group", recited in col. 6, lines 23-31,"unique VID assigned by management action", recited in col. 8, lines 49-60) for each user group ("unique group member number of VLAN", recited in col. 9, lines 22-27). Therefore, it would have been obvious ton of ordinary skill in the art at the time the invention was made to modify the features of Wu et al. by using features of Brown et al. in order to provide dynamic learning of a data packet associated with a group identifier (See Col. 4, lines 10-27 for motivation).

Wu '629, Brown '567, and Rodrig '314 disclose all the claimed limitation with the exception of being silent with respect to: the basis of subscription managing information

However, Sistanizadeh '575 from the same field of endeavor discloses the above claimed features:

**Regarding claim 6**, subscription managing information (SLA/Service Level Agreement", recited in col. 19, lines 12-24) for each user group ("customer VLANs, recited in col. 12, lines 35-43).

In view of the above, it would have been obvious to one skill in the art to modify the features of Wu '629 with Brown '567 with Rodrig '314 by using features as taught by Sistanizadeh '575 in order to provide fairness with regard network resources since limiting the learning according to the bandwidth prescribed to each user group by network management would prevent one particular user group from consuming all the network resources.

9. **Claims 9-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al (US 7,046,629 B2) in view Brown (US 7,302,432 B2), Rodrig et al (US 6,256,314 B1) and further view of Vasa et al (US 6,308,218 B1).

**Regarding claim 9**, Wu et al. discloses the switching apparatus ("switch in a network system", recited in abstract, lines 1-5), **regarding claim 10**, the switching apparatus ("switch in a network system", recited in abstract, lines 1-5), **regarding claim 11**, switching apparatus ("switch in a network system", recited in abstract, lines 1-5).

Wu et al. discloses all the claimed limitation with the exception of being silent with regard to the following features:

**Regarding claim 10**, wherein said address learning unit overwrites an address learned in said address learning table for a user group whose number of learned addresses has reached said address learning upper limit value with a new address of said user group.

**Regarding claim 11**, wherein said address learning unit overwrites an address that is learned in said address learning table for a user group whose number of learned

addresses has reached said address learning upper limit value and is set in an oldest arrived packet of said user group with a new address of said user group.

Brown '432 in the same field of endeavor discloses:

**Regarding claim 10**, wherein said address learning unit overwrites ("as dynamic entry is learned, overwritten with a new value", recited in col. 9, lines 42-53) an address learned ("shared amongst the VLANs", recited in col. 6, lines 41-53) in said address learning table ("forwarding logic for determining a forwarding decision", recited in col. 5, lines 27-40) for a user group whose number of learned addresses has reached said address learning upper limit value ("maximum allowed number of VLANs per Virtual LAN Group/FID", recited in col. 9, lines 31-41) with a new address of said user group ("members of VLAN group", recited in col. 6, lines 15-24).

**Regarding claim 11,** wherein said address learning unit overwrites ("as dynamic entry is learned, overwritten with a new value", recited in col. 9, lines 42-53) an address learned ("shared learning amongst the VLANs", recited in col. 6, lines 41-53) in said address learning table ("forwarding logic for determining a forwarding decision", recited in col. 5, lines 27-40) for a user group whose number of learned addresses has reached said address learning upper limit value ("maximum allowed number of VLANs per Virtual LAN Group/FID", recited in col. 9, lines 31-41) with a new address of said user group ("members of VLAN group", recited in col. 6, lines 15-24). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify then features of Wu et al. by using features as taught by Brown et al. in

order to provide shared learning amongst the VLANs based on group member ID as suggested in col. 4, lines 17-34 for motivation.

Wu ‘629, Brown ‘567 and Rodrig ‘314 disclose all the claimed limitation with the exception of being silent with regard to the following features: **regarding claim 9**, wherein said address learning unit does not learn a new address of a user group whose number of learned addresses has reached said address learning upper limit value; **regarding claim 11**, an oldest arrived packet of the user group with a new address of the user group.

However, Vasa ‘218 from the same field of endeavor discloses then above claimed features:

**Regarding claim 9**, wherein said address learning unit (fig. 3, fig. 6, “look-up table with learned look-ups”, recited in col. 10, lines 1-11) does not learn a new address of a user group (“arranged of LAN into groups”, recited in col. 13, lines 9-27) whose number of learned addresses has reached said address learning upper limit value (“sending of jam signals when the buffer is full”, recited in col. 3, lines 661- col. 4, lines 2-that explicit implies there is no learning taking place in the address look-up table).

**Regarding claim 11**, an oldest arrived packet of the user group with a new address (“updating of the entries of the look-up tables to reflect changes as an entry becomes older”, recited in col. 14, lines 54-61) of the user group (“arranged of LAN into groups”, recited in col. 13, lines 9-27).

In view of the above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Wu ‘629 with Brown ‘567,

Rodrig '314 by using features as taught by Vasa '218 in order to provide learning in a multi-port bridge and to control the memory in the look up table as suggested in col. 2, lines 18-35 for motivation.

10. **Claims 7-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Vasa et al (US 6,308,218 B1) in view Brown (US 6,633,567 B1) in further view of Sistanizadeh et al (6,963,575 B1).

**Regarding claim 7**, Vasa et al. discloses a switching apparatus (fig. 3, Multi Port Bridge, recited in col. 5, lines 31-39) for learning a source address set in a packet in an address learning table (fig. 3, Look-up tables 204, recited in col. 5, lines 67 –col. 6, lines 8) and delivering a packet on the basis of an address learned ("directing among the ports data packets", recited in col. 6, lines 1-8) in said address learning table (fig. 3, Look-up tables 204, recited in col. 5, lines 67 –col. 6, lines 8), said switching apparatus (fig. 3, Multi Port Bridge, recited in col. 5, lines 31-39) comprising: an address learning unit (fig. 3, Look-up tables 204, recited in col. 5, lines 67 –col. 6, lines 8, "learned-look-ups", recited in col. 10, lines 1-11) and said subscription managing information is a subscription band of each user group (fig. 3, see, "plurality of ports relating to VLAN segments with capacity such as 10,1 and 100 Mbps", recited in col. 5, lines 31-43-here the subscription band is understood to be related to the capacity or SLA/Service Level Agreement of VLAN user group) , the subscription band (fig. 3, see, "plurality of ports relating to VLAN segments with capacity such as 10,1 and 100 Mbps", recited in col. 5, lines 31-43)of each user group ("VLAN groups", recited in col. 3, lines 16-35).

**Regarding claim 8**, Vasa et al. discloses a switching apparatus (fig. 3, Multi Port Bridge, recited in col. 5, lines 31-39) for learning a source address set in a packet in an address learning table (fig. 3, Look-up tables 204, recited in col. 5, lines 67 –col. 6, lines 8) and delivering a packet ("directing among the ports data packets", recited in col. 6, lines 1-8) on the basis of an address learned in said address learning table (fig. 3, Look-up tables 204, recited in col. 5, lines 67 –col. 6, lines 8), said switching apparatus (fig. 3, Multi Port Bridge, recited in col. 5, lines 31-39) comprising: an address learning unit (fig. 3, Look-up tables 204, recited in col. 5, lines 67 –col. 6, lines 8, "learned-look-ups", recited in col. 10, lines 1-11).

Vasa et al. discloses all the claimed limitation with the exception of being silent with respect to the following features:

**Regarding claim 7**, for limiting a number of learned addresses such that a number of learned addresses for each user group in said address learning table is equal to or less than an address learning upper limit value for said user group; wherein said address learning unit assigns a fixed said address learning upper limit value to each user group and assigns a fixed said address learning upper limit value to each user group, the and said address learning upper limit value is weighted.

**Regarding claim 8**, for limiting a number of learned addresses such that a number of learned addresses for each user group in said address learning table is equal to or less than an address learning upper limit value for said user group; wherein said address learning unit assigns a fixed said address learning upper limit value to each user group, and said subscription managing information is a number of subscribing

locations of each user group, and said address learning upper limit value is weighted according to the number of subscribing locations of each user group.

However, Brown et al. in the same field of endeavor discloses the following features:

**Regarding claim 7**, for limiting a number of learned addresses such that a number of learned addresses ("maximum of four VIDs per FID/Virtual LAN", recited in col. 9, 31-40) for each user group ("members of VLAN group", recited in col. 6, lines 15-24) in said address learning table ("forwarding logic for determining a forwarding decision", recited in col. 5, lines 27-40) is equal to or less than an address learning upper limit ("maximum allowed number of VLANs per Virtual LAN Group/FID", recited in col. 9, lines 31-41) value ("four VID per FID", recited in col. 9, lines 34-36) for said user group ("members of VLAN group", recited in col. 6, lines 15-24); wherein said address learning unit assigns a fixed said address learning upper limit value ("maximum allowed number of VLANs per Virtual LAN Group/FID", recited in col. 9, lines 31-41) to each user group ("members of VLAN group", recited in col. 6, lines 15-24) and assigns a fixed said address learning upper limit value ("maximum of eight VLANs per FID", recited in col. 9, lines 41-44) to each user group ("members of VLAN group", recited in col. 6, lines 15-24); , and said address learning upper limit value ("maximum allowed number of VLANs per Virtual LAN Group/FID", recited in col. 9, lines 31-40).

**Regarding claim 8**, for limiting a number of learned addresses ("maximum of four VIDs per FID/Virtual LAN", recited in col. 9, lines 33-40) such that a number of learned addresses for each user group ("members of VLAN group", recited in col. 6,

lines 15-24) in said address learning table ("forwarding logic for determining a forwarding decision", recited in col. 5, lines 27-40) is equal to or less than an address learning upper limit value ("maximum allowed number of VLANs per Virtual LAN Group/FID", recited in col. 9, lines 34-40) for said user group ("members of VLAN group", recited in col. 6, lines 15-24); wherein said address learning unit assigns a fixed said address learning upper limit value ("maximum of eight VLANs per FID", recited in col. 9, lines 31-40) to each user group ("members of VLAN group", recited in col. 6, lines 15-24), and said subscription managing information ("assigned of VID to VLAN by management", recited in col. 8, lines 49-60) is a number of subscribing locations fig. 2A, VLAN 214c, VLAN 214a) of each user group ("members of VLAN group", recited in col. 6, lines 23-31) of each user group ("members of VLAN group", recited in col. 6, lines 23-31), and said address learning upper limit value ("maximum of eight VLANs per FID", recited in col. 9, lines 31-40) is weighted according to the number of subscribing locations (fig. 2A, VLAN 214c, VLAN 214a) of each user group ("members of VLAN group", recited in col. 6, lines 23-31). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Vasa et al. by using features as taught by Brown et al. in order to provide dynamic learning of a data packet associated with a group identifier (See Col. 4, lines 10-27 for motivation).

Vasa et al. and Brown et al. disclose all the claimed limitation with the exception of being silent with regard to the following features:

**Regarding claim 7**, the subscription managing information is a subscription band of each user group.

However, Sistanizadeh et al. in the same field of endeavor discloses the following features:

**Regarding claim 7**, the subscription managing information (SLA/Service Level Agreement", recited in col. 19, lines 12-24) is a subscription band ("bandwidth among the traffic groups", recited in col. 20, lines 38-45) of each user group ("customer VLANs, recited in col. 12, lines 35-43), Therefore, it would have been obvious to one skill in the art to modify the features of Vasa et al. with Brown et al. by using features as taught by Sistanizadeh et al. in order to provide fairness with regard network resources since limiting the learning according to the bandwidth prescribed to each user group by network management would prevent one particular user group from consuming all the network resources.

11. **Claims 12-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al (US 7,046,629 B2) in view of Vasa et al (US 6,038,218 B1) in further view of Ohnishi et al (US 2003/0031190 A1), Rodrig et al (US 6,256,314).

**Regarding claim 12**, Wu et al. discloses a switching apparatus ("switch in a network system", recited in abstract, lines 1-5) for learning a source address set (fig. 2, Source Address in address learning Table) in a packet in an address learning table and delivering a packet on the basis of an address learned in said address learning table, said switching apparatus ("switch in a network system", recited in abstract, lines 1-5)

comprising: an address learning unit for limiting a number of learned addresses on the basis of a total number threshold value ("determining whether or not the learned addresses has exceeded the maximum number", recited in col. 2, lines 38-40) which is based on a number of learnable addresses.

**Regarding claim 13,** the switching apparatus ("switch in a network system", recited in abstract, lines 1-5), and said total number threshold value does not exceed a maximum number of addresses learnable in said address learning table ("determining whether or not the learned addresses has exceeded the maximum number", recited in col. 2, lines 38-40).

Wu et al. discloses all the claimed limitation with the exception of being silent with regard to the following features:

**Regarding claim 12**, the user group, using memory of said address learning table shared with all of said user groups and an individual guaranteed value set for each of user groups which are classified into a plurality of groups based on header information set in said packet by using the memory of the address learning table for guaranteeing an individual guaranteed value of each user group.

However, Vasa et al. in the same field of endeavor discloses those features:

**Regarding claim 12**, using memory (fig. 3, Memory 200, recited in col. 5, lines 62- col. 6, lines 7) of said address learning table (fig. 3, fig. 6, "look-up table with learned look-ups", recited in col. 10, lines 1-11, "utilization of the memory for learned-look up", recited in col. 15, lines 15-22) shared with all of said user groups ("VLAN

groups", recited in col. 3, lines 16-35 as defined by the instant application) and an individual guaranteed value set for each of user groups which are classified ("granting access according to priority", recited in col. 8, lines 30-39) into a plurality of groups ("arrangement of LAN into VLAN groups", recited in col. 3, lines 16-24) based on header information set in said packet ("examination of packet to determine if packet is intended for a VLAN group", recited in col. 3, lines 26-35) by using the memory of the address learning table for guaranteeing an individual guaranteed value of each user group (fig. 3, see bandwidth value in the amount of twenty-four Mbps per LAN ports assigned, col. 5, lines 31-44); so as not to allow increase in a number of learned addresses for a user group which number in said address learning table exceeds said individual guaranteed value when a total number of learned addresses learned in said address learning table reaches said total number threshold value ("sending of jam signal when the buffer is full", recited in col. 3, lines 61- col. 4, lines 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Wu et al. by using features as taught by Vasa et al. in order to order to control the use of memory in the address-look-up table in a multi-port bridge (See Col. 2, lines 19-34 for motivation).

Wu et al. and Vasa et al. disclose all the claimed limitation with the exception of being silent with regard top the following features:

**Regarding claim 13**, wherein said individual guaranteed value is identical for all said user groups, and a value obtained by adding together a value obtained by multiplying a value obtained by subtracting 1 from a total number of user groups by said

individual guaranteed value and said total number threshold value does not exceed a maximum number of addresses learnable in said address learning table.

However, Ohnishi et al (US 2003/0031290 A1) in the same field of endeavor discloses: wherein said individual guaranteed value is identical for all said user groups, and a value obtained by adding together a value obtained by multiplying a value obtained by subtracting 1 from a total number ("subtract of 1 from the present number of registrations", recited in paragraph 0066) of user groups (fig. 2, LAN A to LAN C, recited in paragraph 0057) by said individual guaranteed value (fig. 2, noted: the address learning section with record number additions/subtraction means 8 with respect to the number of learned addresses, paragraph 0060).

In view of the above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Wu et al. and Vasa et al. by using features as taught by Ohnishi et al. in order to prevent the memory or storage area in the address learning table from being monopolized by one user group as suggested in paragraphs 0023-0024 for motivation.

Wu '629, Vasa '218, Ohnishi '190 disclose all the claimed limitations but are silent about claimed features:

**Regarding claim 12**, controlling the number learned addresses in the address learning table for each user group.

However, Rodrig '314 from the same field of endeavor discloses the above claimed features:

**Regarding claim 12**, controlling the number learned addresses in the address learning table for each user group (noted: the learning control table with means for setting list of IP addresses that may be eligible to be learned, col. 13, lines 10-44, see learned information such as VLAN ID, col. 8, lines 24-53, fig. 6, see VLAN ports).

In view of the above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching features of Wu '629 with Vasa '218, Ohnishi '190 by using features as taught by Rodrig '314 in order to control the IP address ranges that may be eligible to learned per VLAN Ids as suggested in col. 13, lines 35-44 for motivation.

12. **Claims 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kusayanagi et al (US 2003/0123462 A1) in view Brown et al (US 6,633,567 B1), and further view of Rodrig et al (US 6,256,314 B1), Kadambi et al (US 7,415,022 B2).

**Regarding claim 14**, Kusayanagi et al (US 2003/0123462 A1) discloses a switching apparatus (fig. 1, Packet Switch 14, recited in paragraph 0041, lines 3-8) for learning a source address set in a packet (fig. 2, "learning of source address in Office LAN", recited in paragraph 0052) an address learning table (fig. 1, Address Learning Unit 20, recited in paragraph 0041, lines 3-13) and delivering a packet on the basis of an address learned ("forwarding of the packet to a destination", recited in paragraph 0052, lines 1-16) in said address learning table (fig. 1, Address Table 22, recited in paragraph 0041, lines 3-13) said switching apparatus(fig. 1, Packet Switch 14, recited in

paragraph 0041, lines 3-8) comprising: an address learning unit for (fig. 1, Address Learning Unit 20, recited in paragraph 0041, lines 3-13).

Kusayanagi '462 discloses all the claimed limitation with the exception of being silent with regard to the following features:

**Regarding claim 14**, the basis of a total number threshold value which is based on a number of learnable addresses by using memory of said address learning table shared with all of said user groups and an individual guaranteed value set for each user group which are classified into a plurality of groups based on header information set in said packet, marking an address learned in said address learning table for a user group whose number of learned addresses exceeds said individual guaranteed value at a time of learning the new address, and overwriting the marked address with a new address of a user group whose number of learned addresses is less than said individual guaranteed value when a total number of currently learned addresses reaches a maximum number of addresses learnable in said address learning table.

However, Brown '567 in the same field of endeavor discloses the following features:

**Regarding claim 14**, the basis of a total number threshold value ("the maximum number of VLANs per FID or Virtual LAN group", recited in col. 9, lines 33-41) which is based on a number of learnable addresses by using memory (fig. 2B, Switch 200-see, Segment Buffer Memory 224, recited in col. 7, lines 16-29) of said address learning table shared ("shared learning among the learned MAC address", recited in col. 6, lines 41-54) with all of said user groups ("VLANs assigned a unique group identifier", recited

in col. 9, lines 18-29) and an individual guaranteed value set for each user group ("VLANs per FID", recited in col. 9, lines 38-41) which are classified into a plurality of groups ("VLANs assigned a unique group identifier", recited in col. 9, lines 18-29) based on header information set in said packet ("data packet with VID", recited in col. 6, lines 53-63) marking an address learned in said address learning table (fig. 2, "forwarding logic for determining forwarding decision", recited in col. 5, lines 27-41) for a user group ("members of VLAN group", recited in col. 6, lines 15-24) whose number of learned addresses exceeds said individual guaranteed value at a time of learning the new address, and overwriting the marked address with a new address of a user group whose number of learned addresses is less than said individual guaranteed value ("overwritten with new value when a dynamic entry is learned", recited in col. 9, lines 46-53) a total number of currently learned addresses reaches a maximum number of addresses learnable in said address learning table (fig. 2, "forwarding logic for determining forwarding decision", recited in col. 5, lines 27-40).

In view of the above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Kusayanagi et al (US 2003/0123462 A1) et al. by using features as taught by Brown et al. in order to provide dynamic learning of a data packet associated with a group identifier as suggested in col. 4, lines 10-27 for motivation.

Kusayanagi '462, and Brown '567 disclose all the claimed limitations with the exception of being silent about the claimed features:

**Regarding claim 14**, controlling the number of learned addresses in the address learning table for each user group.

However, Rodrig '314 from the same field of endeavor discloses the above claimed features:

**Regarding claim 14**, controlling the number learned addresses in the address learning table for each user group (noted: the learning control table with means for setting list of IP addresses that may be eligible to be learned, col. 13, lines 10-44, see learned information such as VLAN ID, col. 8, lines 24-53, fig. 6, see VLAN ports).

In view of the above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching features of Kusayanagi '462, with Brown '567 by using features as taught by Rodrig '314 in order to control the IP address ranges that may be eligible to learned per VLAN Ids as suggested in col. 13, lines 35-44 for motivation.

Kusayanagi '462, Brown '567, and Rodrig '314 disclose all claimed limitation with the exception of being about claimed features: using memory of the address learning table for guaranteeing an individual guaranteed value for each user group.

However, Kadambi '022 from the same field of endeavor discloses the above claimed features:

**Regarding claim 14**, using memory of the address learning table (fig. 1, SOC memory for packet processing, col. 4, lines 45, see, lookup VLAN Tables for address lookups, col. 2, lines 64 to col. 3, lines 12, fig. 2, VLAN tables 33a, 23b, 23c, col. 10, lines 61-65, col. 11, lines 48-59) for guaranteeing an individual guaranteed value for

each user group (noted: bandwidth based on priority queue and class of service, col. 31, lines 50-67).

In view of the above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching features of Kusayanagi ‘462 with Brown ‘567, Rodrig ‘314 by using features as taught by Kadambi '022 in order to provide determination of the packet VLAN destination using the VLAN tables.

13. **Claims 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kusayanagi et al (US 2003/0123462 A1) in view Brown et al (US 6,633,567 B1), and further view of Rodrig et al (US 6,256,314 B1).

**Regarding claim 15**, Kusayanagi et al (US 2003/0123462 A1) et al. discloses a switching apparatus (fig. 1, Packet Switch 14, recited in paragraph 0041, lines 3-8) for learning a source address set in a packet (fig. 2, "learning of source address in Office LAN", recited in paragraph 0052) in an address learning table (fig. 1, Address Learning Unit 20, recited in paragraph 0041, lines 3-13) and delivering a packet on the basis of an address learned (“forwarding of the packet to a destination”, recited in paragraph 0052, lines 1-16) in said address learning table (fig. 1, Address Table 22, recited in paragraph 0041, lines 3-13), said switching apparatus (fig. 1, Packet Switch 14, recited in paragraph 0041, lines 3-8) comprising: an address learning unit (fig. 1, Address Learning Unit 20, recited in paragraph 0041, lines 3-13).

Kusayanagi ‘462 discloses all the claimed limitation with the exception of being silent with regard to the following features:

**Regarding claim 15**, for limiting a number of learned addresses such that a number of learned addresses for each of user groups which are classified into a plurality of groups based on header information set in said packet in said address learning table is equal to or less than an address learning upper limit value for said user group; wherein when a packet with a new address arrives, said address learning unit records occurrence of an event in which a number of learned addresses for a user group of the source address of said packet reaches said address learning upper limit value for said user group.

However, Brown '567 in the same field of endeavor discloses the following features:

**Regarding claim 15**, for limiting a number of learned addresses ("maximum of four VIDs per FID/Virtual LAN", recited in col. 9, lines 31-41) such that a number of learned addresses for each of user groups which are classified into a plurality of groups ("VLANs assigned a unique group identifier", recited in col. 9, lines 18-29) based on header information set in said packet ("extract of VID from the received packet", recited in col. 8, lines 7-17) said address learning table (fig. 2, "forwarding logic for determining forwarding decision", recited in col. 5, lines 27-40) is equal to or less than an address learning upper limit value for said user group ("members of VLAN group", recited in col. 6, lines 15-24), wherein when a packet with a new address arrives, said address learning unit records occurrence (fig. 2B, Dynamic Entry as a new entry is learned) of an event in which a number of learned addresses for a user group ("members of VLAN group", recited in col. 6, lines 15-24) of the source address of said packet reaches said

address learning upper limit value ("maximum allowed number of VLANs per Virtual LAN Group/FID", recited in col. 9, lines 33-40) for said user group ("the maximum number of VLANs per FID or Virtual LAN group", recited in col. 9, lines 31-41). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Kusayanagi et al (US 2003/0123462 A1) et al. by suing features as taught by Brown et al. in order to provide dynamic learning of a data packet associated with a group identifier (See Col. 4, lines 10-27 for motivation).

Kusayanagi '462, and Brown '567 disclose all the claimed limitations with the exception of being silent about the claimed features:

**Regarding claim 14**, controlling the number of learned addresses in the address learning table for each user group.

However, Rodrig '314 from the same field of endeavor discloses the above claimed features:

**Regarding claim 14**, controlling the number learned addresses in the address learning table for each user group (noted: the learning control table with means for setting list of IP addresses that may be eligible to be learned, col. 13, lines 10-44, see learned information such as VLAN ID, col. 8, lines 24-53, fig. 6, see VLAN ports).

In view of the above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching features of Kusayanagi '462, with Brown '567 by using features as taught by Rodrig '314 in order to control the IP address ranges that may be eligible to learned per VLAN Ids as suggested in col. 13, lines 35-44 for motivation.

### *Conclusion*

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yazaki et al (US 7,012,890 B2).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CANDAL ELPENORD whose telephone number is (571)270-3123. The examiner can normally be reached on Monday through Friday 7:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Bin Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Examiner, Art Unit 2416

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